



Excessive heat and respiratory hospitalizations in New York State: Estimating current and future public health burden related to climate change

Author(s): Lin S, Hsu WH, Van Zutphen AR, Saha S, Lubber G, Hwang SA
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Abstract:

BACKGROUND: Although many climate-sensitive environmental exposures are related to mortality and morbidity, there is a paucity of estimates of the public health burden attributable to climate change. **OBJECTIVE:** We estimated the excess current and future public health impacts related to respiratory hospitalizations attributable to extreme heat in summer in New York State (NYS) overall, its geographic regions, and across different demographic strata. **METHODS:** On the basis of threshold temperature and percent risk changes identified from our study in NYS, we estimated recent and future attributable risks related to extreme heat due to climate change using the global climate model with various climate scenarios. We estimated effects of extreme high apparent temperature in summer on respiratory admissions, days hospitalized, direct hospitalization costs, and lost productivity from days hospitalized after adjusting for inflation. **RESULTS:** The estimated respiratory disease burden attributable to extreme heat at baseline (1991-2004) in NYS was 100 hospital admissions, US\$644,069 in direct hospitalization costs, and 616 days of hospitalization per year. Projections for 2080-2099 based on three different climate scenarios ranged from 206-607 excess hospital admissions, US\$26-\$76 million in hospitalization costs, and 1,299-3,744 days of hospitalization per year. Estimated impacts varied by geographic region and population demographics. **CONCLUSIONS:** We estimated that excess respiratory admissions in NYS due to excessive heat would be 2 to 6 times higher in 2080-2099 than in 1991-2004. When combined with other heat-associated diseases and mortality, the potential public health burden associated with global warming could be substantial.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3556608>

Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1, SRES A2, SRES B1

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature, Other Exposure

Climate Change and Human Health Literature Portal

Air Pollution: Ozone

Temperature: Extreme Heat

Other Exposure: dew point

Geographic Feature: ☒

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☒

resource focuses on specific location

United States

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma, Bronchitis/Pneumonia, Chronic Obstructive Pulmonary Disease, Other Respiratory Effect

Respiratory Condition (other) : chronic bronchitis; emphysema; bronchiolitis

Mitigation/Adaptation: ☒

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☒

type of model used or methodology development is a focus of resource

Cost/Economic, Outcome Change Prediction

Population of Concern: A focus of content

Population of Concern: ☒

populations at particular risk or vulnerability to climate change impacts

Children, Elderly, Low Socioeconomic Status

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment: ☒



resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content